DOCUMENT RESUME

ED 167 889 CG 013 286

AUTHOR Bemis, Stephen E.
TITLE Behavioral Consistency--Breakthrough in Unassembled Examining.
PUB DATE 30 Aug 78
NOTE 23p.; Paper presented at the Annual Convention of the American Psychological Association (86th, Toronto, Ontario, Canada, August, 1978); Parts Marginally legible due to print quality

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Achievement Rating; *Behavior Patterns; Behavior Rating Scales; Comparative Analysis; *Employment Qualifications; Equivalency Tests; *Evaluation Methods; Government Employees; *Job Skills; *Personnel Evaluation; Task Performance
IDENTIFIERS *United States Civil Service Commission

ABSTRACT

The relationship between the behavioral consistency procedure and two other procedures (application form analysis and rating scales) were investigated through a comparison of initial employment and hiring practices used by the U.S. Civil Service Commission. The position of Budget Analyst was initially assessed in terms of five achievement areas and a panel of expert raters established the dimensions for rating potential applicants on their suitability for the position. Experienced personnel staffing specialists then rated the applications of 50 individuals who were already in the position of Budget Analyst using several combinations of rating procedures to determine the applicants' suitability for the job. Results indicated that the behavioral consistency approach is: (1) more costly and time-consuming; (2) more reliable; and (3) applicable for developing hiring procedures for mid-level occupations at the point of entry into federal service. (Author/HLM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

S E Bemis

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

BEST COPY AVAILABLE

ED167889

BEHAVIORAL CONSISTENCY - BREAKTHROUGH IN UNASSEMBLED EXAMINING

STEPHEN E. BEMIS
INFORMATION SCIENCE INCORPORATED*
WASHINGTON, D. C.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

INTRODUCTION

The work which I am going to describe today was initiated and largely completed while I was with the U.S. Civil Service Commission. The work results from independent initiatives made by Frank Schmidt and myself while in the Personnel Research and Development Center and the Bureau of Recruitment and Examining, respectively, in the U.S. Civil Service Commission. Early on these initiatives were merged to maximize the effort. Frank and I were assisted in these efforts by Jim Caplan, and a number of Commission staffing specialists, and regional psychologists. Frank, Jim, and I have all used variants of these procedures with jobs in the private sector. While discussing the specific aspects of the research endeavor, I will not dwell on what components were actually directed by Frank and which were directed by myself, for Frank, Jim, and I jointly share any praise and any criticism which might be leveled at this work.

*Suite 790-South Lobby, 1800 "M" Street, N.W., Washington, D.C. 20036.

Presented as part of a symposium, "Recent Innovations in Personnel Selection," at American Psychological Association Annual Meeting, Toronto, Ontario, Canada, August 30, 1978.

CG 013286

DEVELOPMENT OF PROCEDURES

While the impetus for the two initially independent efforts was not the same, the purpose was essentially the same: to develop valid methods for assessing the qualifications of professional level people for jobs in the Federal Government. The problem was to objectively compare the qualifications of individuals applying for initial employment in various agencies of the Federal Government in professional level jobs paying in the range of $15,000 to $24,000. It was hoped that the procedures also could be adapted for use by all government agencies in promotion programs; that is, assist in comparing the qualifications of candidates for upgrading within the various government agencies. Such assessments of experienced applicants for professional jobs are done routinely in federal, state, and local government and, in a typically less formalized way, by many in the private sector. Civil service terminology for this process is "unassembled examining," meaning that candidates do not have to assemble in a given place to have their qualifications assessed through the use of a paper-and-pencil test, assessment center or some other process.

Traditionally, civil service examiners utilizing unassembled examining procedures have looked to amount of training, length of experience, number of awards, and other

such indicators of qualifications. Numerical scores are assigned to the indicators, typically on the basis of quantity rather than quality.

One aspect of this project was to conduct an extensive search of the research literature for previous studies on unassembled examining procedures. Very few studies of this kind were found in the standard professional journals. Those studies that had been done tend to be unpublished and quite difficult and time consuming to track down. While reviews of unassembled examining procedures had been done (e.g. Beardsley, 1976), there apparently was no previous systematic review of the research literature. Although one of the motivations for this research was a Comptroller General's Office report criticizing the reliability of unassembled examining procedures used by the Federal Government, the review of research (Caplan and Schmidt, reference note #1) indicated that reliability was not necessarily a problem for the kinds of mechanical formula oriented ratings of education and experience that public personnel systems had traditionally used. Both interrater and intrarater reliabilities were generally adequate in the reports that were located.

While the literature review was comforting with regard to the reliability of unassembled examining procedures, it was disturbing with regard to validity. Traditional

evaluations of education and experience appeared not to correlate very highly with measures of job performance. Where significant correlations exist, they are in the .10 to .25 range. A primary reason for this lack of validity seemed to be the basic assumption underlying traditional procedures. This assumption was that education and experience were the primary if not sole causes of traits, abilities, and behaviors leading to superior job performance. A search of the psychological literature led to a new set of assumptions and principles which could serve as the foundation for improved methods of unassembled examining.

Our major assumption was that the new procedure should be based upon the principle of behavioral consistency. This well accepted principle in psychology holds that the best predictor of future behaviors of a given kind is a measure of past behavior of a similar nature. That is, the principle holds that after attainment of a certain chronological age, the major behavior patterns of the individual tend to be quite stable over time. Certainly individuals can and do change, however, the most important behaviors of most people do not change dramatically over reasonable periods of time. Past <u>behaviors</u>, as opposed to the past <u>exposures</u> normally evaluated in unassembled examining, are the best predictors of future behaviors and the more similar the past behaviors

are to the future behaviors the better they should be as predictors. This perspective and an extensive review of the literature on job analysis led to a new proposed rating procedure (USCSC, 1977).

There were four ancillary assumptions in designing the new procedure.

(1) Applicants should be evaluated on those behavioral dimensions that correspond to large differences in incumbent job performance.

(2) The best source of information on incumbent job performance is from people who have known and observed superior and marginal performance.

(3) The most complete and accurate information on applicant past behavior can and must come from the applicants themselves.

(4) Past applicant behaviors can be reliably scaled on job relevance by subject matter experts and these scaled bench mark achievements can be used by staff in the personnel office to produce reliable ratings of new candidates.

Briefly, the procedure involves convening a group of subject matter experts who list the most differentiating factors between successful and unsuccessful workers, using clearly defined procedures. These subject matter experts

are chosen because of their detailed knowledge of the job and their experience observing both outstanding and marginal job incumbents. The procedures require them to recall, by name, the 5-10 best employees they have known in the occupations and 5-10 barely acceptable incumbents. The mental set we create is one where all subject matter experts are looking for dimensions where their two lists of incumbents differ.

The list of behavioral dimensions resulting from this meeting is evaluated by the subject matter experts using specially designed rating scales. The scales cover the expected differentiating power of the dimension (validity) and the expected variance in a typical applicant pool. Specific dimensions that are important to subspecialties and not necessarily to the overall occupation are also identified. Based upon the information obtained from the subject matter experts, a tailored application form for the specific occupation is developed. For each of the 5-7 major achievement dimensions which are maximally discriminatory for an occupation, each applicant is asked to describe in detail at least two achievements demonstrating superiority on each dimension. For each achievement the candidate provides information on what the problem or objective was, what was actually done and when, what the outcome or result was, what percentage of the credit he or she claims for the

outcome, and the name of someone who could verify the achievement.

The subject matter experts are given an opportunity to review the application form and suggest revisions. The revised forms are filled out by applicants. The completed forms then are rated by the subject matter experts. The bench mark achievements as rated are used as guides by staffing personnel. The determination of bench marks is contingent upon agreement by subject matter experts and coverage of a broad level of proficiency. In effect, we are capturing the personnel decision making policies of people who know the job well (the subject matter experts) and applying them on a standardized basis. The staffing personnel rate a holdout group of applicants to assure they can accurately apply the bench marks.

At this point it might be desirable to look at samples of pages from one of the application forms that has been developed according to these procedures. (See slides 1-6.)

Note that the reason why the particular achievement area is important to the occupations is spelled out at the top of the form. The detailed instructions make it clear that achievements related to an achievement dimension area should be cited even if they occurred in non-work oriented

settings such as volunteer work, hobbies, educational endeavors.

When the application is used operationally, a total score is calculated by the summation of the ratings given to each of the achievement dimensions related to the job for which they are being considered.

The approach to validity being taken in the behavioral consistency method of unassembled examining is content sampling. That is, we sample the kinds of achievements required in job performance (Wernimont and Campbell, 1968). The behavioral dimensions serve as conceptual anchors to direct applicant's thinking toward the kinds of past achievements related to the job for which the applicant applied.

COMPARISON STUDY

A study was conducted to compare the behavioral consistency procedure to two other procedures based upon the more traditional assumptions that have been used in Civil Service Commission examining offices. One had been in use for some time and one was of recent vintage. Based upon criteria of job homogeneity and availability, the occupation of budget analyst was selected for study.

Two teams each consisting of one staffing specialist and one psychologist met with budget analyst subject matter experts and identified the important job dimensions. One of

these panels discussed job tasks before getting into behavioral dimensions of incumbents and the other counterbalanced this order. This was to test the assumption that first considering tasks contaminated identification of behavioral dimensions. The subject matter experts evaluated the dimensions on usefulness in distinguishing between superior and barely acceptable employees and on variance in the applicant pool. They also identified the job tasks which required each dimension. The results from the two meetings were comparable. The dimensions resulting from these two meetings were combined and a final application form was prepared. This process involves the elimination of dimensions which are not rated high on both validity and variability, and the combination of highly rated dimensions into five achievement areas. The five achievement areas on the Budget Analyst behavioral consistency application form were:

(1) Analytical and quantitative reasoning ability.

(2) Interpersonal and organizational skills.

(3) Motivation, initiative, and ability to organize work.

(4) Writing ability.

(5) Oral communication ability.

This application form was sent out to the subject matter experts for comment and criticism. As the comments were generally favorable the project staff judged that no changes were necessary. The application form was then sent

out to incumbent Budget Analysts in a number of agencies in the Washington area.

Table 7 shows the number of achievements described under each dimension and the reliability of the average rating based on eight subject matter experts. As bench marks are always based upon panel results, this is the best estimate of item reliability. The correlations in parenthesis show the reliability if one aberrant rater (who we believe reversed the scale) is removed.

Sixteen experienced personnel staffing specialists assisted in the project by rating applications from the 50 people who responded to our request. They were divided into four groups of four each. The first group applied one of the traditional procedures followed by the behavioral consistency procedure, with order counterbalanced in the second group. The same procedure was followed for the other two groups with a different traditional rating procedure and the behavioral consistency procedure being used. In the case of all rating procedures staffing specialists were instructed to make independent ratings. Under no circumstances were the staffing specialists to discuss applicants, applicant responses, or ratings assigned among themselves. Because it was a new procedure, the behavioral consistency approach was applied according to "the book" while the two traditional approaches were applied as they are typically applied in examining offices.

The average reliabilities and intercorrelations among the methods are shown in Table 8. You will note that the reliability of the behavioral consistency approach was .78. (The reliability would be .88 if two raters were used.) Furthermore, the approach showed little correlation with either of the two traditional methods. The traditional methods correlate with themselves and with each other at about the same level ranging from .47 to .52. When each is corrected for unreliability, the two traditional methods correlate .94. Apparently the behavioral consistency approach is measuring something quite different than the other two approaches as they were applied in this study. Further, what the new approach measures, it measures more reliably than do the credentialistic methods of applicant evaluation.

CONCLUSIONS

Clearly the behavioral consistency approach is more costly and time consuming to apply, at least initially, than the older, simpler, but probably less valid methods. The results from this study showed that improved reliability resulted from the use of the new procedures. In the long run it would be more cost effective to use the behavioral consistency approach than to try to improve the reliability of the traditional approaches through the use of additional raters. Improved "face validity," field operational experience in applying the procedures to a variety of occupations, and these reliability considerations have

led the Civil Service Commission to begin switching to the use of these procedures in developing examinations for mid-level occupations at the point of entry into the federal service. Further, agencies have been allowed to adopt the procedures for use in their merit promotion programs. This is a very positive step because the system is job related and concentrates on achievements rather than credentials. Therefore it should be fairer to minorities and women who may not have had an opportunity to obtain credentials, but who have legitimate achievements in vocational or avocational areas which would not receive credit in a traditional training and experience system. Further, we believe that over the years, this change will result in many millions of dollars being saved for the government and thus for the taxpayers.

The procedures briefly described in this presentation are being used to develop assessment procedures for Aviation Safety Inspectors, Budget Analysts, Veterans Claims Examiners, Training Instructors, Equipment Specialists, Counseling Psychologists, Economists, Position Classification Specialists, Quality Assurance Specialists and Criminal Investigators. Variants of the procedures have been used with a number of private sector jobs. They have been applied to such jobs as general managers, sales managers, division dispatchers,

layout technicians, salesmen and project managers. Even where a special application form is not needed, the job analysis procedure can be useful in identifying dimensions that should be covered in interviewing aids for specific occupations and in the identification of knowledges, skills, and abilities which should be tested when a criterion related validation study is to be conducted. We see this as not only a breakthrough in unassembled examining but as a simplified, more defensible variant on Job Element procedures (Primoff, 1975) for use in a wide variety of public and private sector jobs.

* * * * * * * *

REFERENCES

Beardsley, V. A. A Study of the Rating of Education and Experience as an Examination Method in the Pennsylvania State Civil Service Commission, Bureau of Examinations, June, 1976.

Molyneaux, J. W. An Evaluation of Unassembled Examinations. Thesis submitted to the faculty of the School of Government of The George Washington University in partial fulfillment of the requirements for the degree of Masters of Arts in Personnel Administration, February, 1953.

Primoff, E. S. How to Prepare and Conduct Job Element Examinations. Personnel Research and Development Center, USCSC, June, 1975.

U.S. Civil Service Commission. BRE Exam Preparation Manual, Bureau of Recruiting and Examining, June, 1977.

Wernimont, P. F. and Campbell, J. "Signs, Samples and Criteria." Journal of Applied Psychology, 1968, 52, 372-376.

REFERENCE NOTES

1. Caplan, J.R., Schmidt, F.L. and Bemis, S.E. The Validity of Education and Experience Ratings: What the Research Literature Shows. Presented at International Personnel Management Association Assessment Council, April, 1977.

ITEM 1

ANALYTICAL SKILLS - Position Classification Specialists analyze information from a wide variety of sources. They must be able to identify pertinent issues and aspects of observed situations and to distinguish between relevant and irrelevant information. Describe your ability to analyze situations and identify pertinent aspects. How well can you do this with specific deadlines to be met?

PROBLEM OR OBJECTIVE

WHAT YOU ACTUALLY DID AND WHEN (approximate dates)

RESULTS OF YOUR EFFORTS

VERIFYING PERSON _____ _____
name telephone

_____ % of Credit Claimed _____
address

ITEM 2

EVALUATIVE SKILLS AND JUDGEMENT - Position Classification Specialists determine the proper value of relevant information and facts regarding a situation. They must be able to interpret written guides and determine their applicability to various circumstances. They must also reach sound, logical, and technically accurate conclusions, and make recommendations or decisions based on those conclusions. Describe your ability to assign the correct weights to various elements of a situation and recommend a satisfactory course of action. How well can you do this with specific deadlines to be met?

PROBLEM OR OBJECTIVE

WHAT YOU ACTUALLY DID AND WHEN (approximate dates)

RESULTS OF YOUR EFFORTS

VERIFYING PERSON _____ _____
name telephone

_____ % of Credit Claimed _____
address

ITEM 3

WORK PLANNING AND ORGANIZING SKILLS - Position Classification Specialists plan and organize daily and cyclical work projects. They must be able to establish and follow priorities in accomplishing assignments. How well can you work with more than one complex project or assignment at a time, organize them as to their relative importance, and allow time for each based on that importance?

PROBLEM OR OBJECTIVE

WHAT YOU ACTUALLY DID AND WHEN (approximate dates)

RESULTS OF YOUR EFFORTS

VERIFYING PERSON _____ _____
name telephone

_____ % of Credit Claimed _____
address

ITEM 4

INTERPERSONAL SKILLS - Position Classification Specialists elicit information from others at all levels in an organization. They must be able to successfully explain and defend decisions and recommendations to persons at all levels in an organization. They must be sensitive to the needs of others and recognize the extent to which they can promote their own ideas. How well can you persuade others to understand your point of view? How effective are you in gaining the willing cooperation of persons outside the scope of your authority? How well can you gain the understanding and respect of those who disagree with you?

PROBLEM OR OBJECTIVE

WHAT YOU ACTUALLY DID AND WHEN (approximate dates)

RESULTS OF YOUR EFFORTS

VERIFYING PERSON _____ _____
name telephone

_____ % of Credit Claimed _____
address

SLIDE 4

SLIDES

ITEM 5

ORAL COMMUNICATION ABILITY - Position Classification Specialists conduct interviews to exchange information. Since much information is gathered orally, they must be able to respond quickly and with composure in stressful, interpersonal situations, and to present ideas or information in an organized manner on short notice. How successful are you in this type of oral communication?

PROBLEM OR OBJECTIVE

WHAT YOU ACTUALLY DID AND WHEN (approximate dates)

RESULTS OF YOUR EFFORTS

VERIFYING PERSON _____ _____
name telephone

_____ % of Credit Claimed _____
address

ITEM 6

WRITING ABILITY - Position Classification Specialists must be able to present both factual and conceptical information, conclusions, and recommendations in writing. How well can you describe a situation or express your ideas in writing? Can you write clearly and concisely?

PROBLEM OR OBJECTIVE

WHAT YOU ACTUALLY DID AND WHEN (approximate dates)

RESULTS OF YOUR EFFORTS

VERIFYING PERSON _____ _____
name telephone (

_____ % of Credit Claimed _____
address

SLIDE 6

SLIDE 7

T A B L E 7

Reliability of Average Rating

Achievement Dimension	# Of Achievement	Reliability of Average Rating
1	29	.78(.88)
2	25	.72(.85)
3	22	.94(.87)
4	19	.75(.85)
5	21	.83(.91)